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TWENTY MINUTES' ADVICE ON THE EYES,

AND

The Means of Preserving the Sight;

THE

FIRST SIGNS OF WEAKNESS OR DECAY,

TOGETHER WITH THE

RIGHT TIME FOR USING GLASSES,

AND THE CHOICE OF THEM.

BY A RETIRED OCULIST.

OF MANY YEARS ACTIVE PRACTICE.

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PREFACE.

THIS Book, which, it is hoped, will prove of benefit to a great many persons, is little more than a compilation from the writings of that eminent oculist, the late Mr. James Ware *.

To those who stand in need of glasses to aid their sight, we recommend the article on “Spectacles,” for the substance of which we are indebted to the best authors who have written on the subject.

* M. Ware, Esq., the oculist, of Bridge Street, Blackfriars Bridge, inherits the talents and amiable manners of his father.

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TWENTY MINUTES' ADVICE ON THE EYES.

A BRIEF DESCRIPTION OF THE EYE AND ITS APPENDAGES.

THE eye is an organ that exhibits to an attentive observer an arrangement of various substances so correctly and delicately adapted to the purposes of the sense of vision, that we cannot help admiring at every step the wisdom by which each part is adjusted to the rest, and made to conspire in effects so remote from what the mere external appearances promise, that we are only able to understand, by means of a laborious investigation, the nature and operations of this wonderful structure, while its whole mechanism still remains far beyond all rivalry of human art.

The following brief description of the eye and its appendages will be sufficient to the complete understanding of this little work.

The globe of the eye is composed of three transparent humours which, from their supposed resemblances, bear the several denominations of the aqueous, the crystalline, and the vitreous. These humours are contained in three proper coats or tunics, called the *sclerotica*, the *choroides*, and the *retina*; besides which there is another, common to the globe and eyelids, called the *conjunctiva*.

Of the proper coats, the *sclerotica* is the outermost. This in the posterior and far greater part of its circumference is white and opaque; but in the anterior, is transparent, and takes the name of *cornea*.

The *choroides* is situated on the inside of the *sclerotica*, between it and the *retina*. It is strongly attached to the *sclerotica* round the margin where the *cornea* begins; whence it passes on, and becomes visible through the transparency of that coat. This part of the *choroides* is called *iris*, being of various colours in different persons, and on its centre is a round perforation to admit the rays of light, called the *pupil*.

The *sclerotica* and *choroides* are well supplied with blood-vessels, particularly the last.

The *retina*, or internal coat, is a white thin membrane of a very soft and tender texture. It lies immediately behind the vitreous humour, round which it is continued to the borders of the crystalline,

and is generally believed to be the immediate seat of the sense of vision.

The globe of the eye rests in the orbit upon a large body of adipose membrane, and is moved in different directions by four straight and two oblique muscles. Five of these take their origin from the bottom of the orbit, the inferior oblique alone arising from its edge; and they are all continued forward to be inserted by a tendinous expansion into the anterior part of the tunica sclerotica, which expansion having a white colour, has acquired the name of tunica albuginea.

The *tunica conjunctiva* is a thin transparent membrane which lines the inner surface of the eyelids, and at the edge of the orbit has a fold, and is continued forward over the anterior half of the globe of the eye. It is exterior to all the other coats of the eye. It is perforated by innumerable and almost imperceptible pores.

The tears are secreted by a conglomerate gland called *glandula lachrymalis*, which is situated in a small depression near the outer angle of the orbit, from which they are poured out by small ducts, and continually spread over the surface of the eye, through two minute orifices at the inner angle, called the *puncta lachrymalis*, which open into a small bag called *sacculus lachrymalis*; and this bag is con-

tinued thence through a bony channel, and opens immediately into the nose.

The little red body observable at the great or inner angle of the eye, is called *caruncula lachrymalis*. It was thought to be the secretory organ of the tears, but it is now known that the true gland is at the opposite angle. Some have supposed that it secretes an oily humour, like that issuing from the small glands on the inside of the eyelids; but, in fact, we seem to have acquired no certain knowledge either as to its structure or use. It may be said to direct the tears into the puncta lachrymalis.

The situation and figure of the eyelids are too obvious to need description. They hang like veils or curtains before the eyes, and are furnished with muscles capable of very quick motion to defend the eyes from those injuries to which their situation might expose them. The structure of the eyelids is of the reticular kind, and they are very easily distended by accident or disease.

The edge of the lids is principally formed by a thin cartilage called *tarsus*, which is adapted to the shape and rounding of the eye. The lower edge of the superior cartilage and upper edge of the inferior meet each other, and are termed the ciliary edges.

It deserves notice, that these cartilages do not terminate in a line like the sharp edge of a knife, but

rather flat, like the back of it, forming two edges, one external and the other internal. When the eyes are shut, the external edges meet: but the internal are preserved at a small distance from each other, leaving a gutter or groove through which the tears are supposed to pass from the lachrymal gland while we are asleep. It should also be remembered, that the eye-lashes arise out of the external edge of the termination of this cartilage; and on the internal, at an evident distance from them, is a line of small orifices, which are the excretory ducts of small glands that lie on the inner surface of the tarsus. The use of these is to secrete a matter similar to soft wax, which constantly covers the edges of the lids, and keeps them supple.

NEAR-SIGHTEDNESS.

THE fact that near-sightedness most commonly commences at an early period of life, and distant-sightedness generally at an advanced age, is universally admitted. Exceptions, however, to these rules frequently occur. Near-sightedness usually comes on between the ages of ten and eighteen. The discovery of it most commonly arises from accident ; and, at the first, the inconvenience it occasions is so little, that it is not improbable the imperfection would remain altogether unnoticed, if a comparison were not instituted with the sight of others, or if the experiment were not made of looking through a concave glass. Among persons in the inferior station of society, means are rarely resorted to for correcting slight defects of this nature ; and, indeed, there is reason to believe, the imperfection in such people is not unfrequently overcome by the increased exertions that are made by the eye to distinguish distant objects. This, however, is not the case in the present day, with persons in the higher ranks of life. When these discover that their discernment of dis-

tant objects is less quick, or less correct, than that of others, though the difference may be very slight, influenced, perhaps, by fashion more than by necessity, they immediately have recourse to a concave glass; the natural consequence of which is, that their eyes, in a short time, become so fixed in the state requiring its assistance, that the recovery of distant vision is rendered afterwards extremely difficult, if not quite impossible. With regard to the proportions between the number of near-sighted persons in the different ranks of society, I have taken pains, says Dr. James Ware, F.R.S., to obtain satisfactory information, by making inquiry in those places where a large number, in these several classes, are associated together. I have inquired, for instance, of the surgeons of the three regiments of foot guards, which consist of nearly 10,000 men, and the result has been, that near-sightedness, among the privates, is almost utterly unknown. Not half a dozen men have been discharged, not half a dozen recruits rejected, on account of this imperfection in the space of nearly twenty years, and yet many parts of a soldier's duty require him to have a tolerably correct view of distant objects. I pursued my inquiries at the military school at Chelsea, where there are 1300 children, and I find that the complaint of near-sightedness had never been made among them until

I mentioned it, and there were then only three who experienced the least inconvenience from it. After this, I inquired at several of the colleges in Oxford and Cambridge ; and though there is a great diversity in the number of students who make use of glasses in the various colleges, they are used by a considerable proportion of the whole number in both universities ; and in one college in Oxford, I have a list of the names of not less than thirty-two out of 127, who wore either a hand-glass or spectacles, between the years 1803 and 1807. It is not improbable that some of these were induced to do it solely because the practice was fashionable ; but I believe that the number of such is inconsiderable, when compared with that of those whose sight received some small assistance from them, though this assistance could have been dispensed with without inconvenience, if the practice had not been introduced. The misfortune resulting from the use of concave glasses is this, that the near-sightedness is not only fixed by it, but a habit of inquiry is induced with regard to the extreme perfection of vision ; and, in consequence of this, frequent changes are made for glasses that are more and more concave, until, at length, the near-sightedness becomes so considerable as to be rendered seriously inconvenient and afflicting. It should be remembered that, for common purposes,

every near-sighted eye can see with nearly equal accuracy through two glasses, one of which is one number deeper than the other, and, though the sight be in a slight degree more assisted by the deeper of these than by the other, yet, on its being first used, the deeper number always occasions an uneasy sensation, as if the eye was strained. If, therefore, the glass that is more concave be at first employed, the eye, in a little time, will be accommodated to it, and then a glass, one number deeper, may be used with similar advantage to the sight; and, if the wish for enjoying the most perfect vision be indulged, this glass may soon be changed for one that is a number still deeper, and so in succession, until, at length, it will be difficult to obtain a glass sufficiently concave to afford the assistance that the eye requires. I have observed, that most of the near-sighted persons, with whom I have had an opportunity of conversing, have had the right eye more near-sighted than the left, and I think it not improbable, that this difference between the two eyes has been occasioned by the habit of using a single concave hand-glass, which, being most commonly applied to the right eye, contributes to render that eye more near-sighted than the other.

Although near-sightedness is in general gradual in its progress, instances occasionally occur of its

existence, in a considerable degree, even in children, in whom it is sometimes discovered almost as soon as they begin to take notice of the objects around them. This may be occasioned by some degree of opacity in the transparent parts of the eye ; but such a cause of near-sightedness is easily discovered by an examination, and is quite different from that state of the eye to which the term myopia, or near-sightedness, is usually applied ; by which is simply meant, too great a convexity either in the cornea or in the crystalline, in proportion to the distance of these parts from the retina.

In such cases of extreme near-sightedness, in children, it is sometimes necessary to have recourse to spectacles ; since, without their assistance, it would be impossible for them to prosecute their learning with ease or convenience.

Extreme near-sightedness is sometimes occasioned by an evident change in the spherical figure of the cornea, and its assumption of a conical shape. This morbid state of the cornea is not only productive of near-sightedness, but, when the projection is considerable, vision is so much confused, that it affords little or no service. The cornea, in most of these cases, is preternaturally thin, and not unfrequently accompanied with symptoms of general debility ; under which last circumstance, chalybeate medicines,

and bracing applications to the eye, have been found to afford considerable benefit.

Near-sightedness is seldom alike in the two eyes, and, in a few cases, one eye of the same person has had a near, and the other a distant sight.

It has been said, by Dr. Porterfield, that the pupils of near-sighted persons *are more delicate* than those of others. This, however, does not accord with Dr. Ware's observations in such cases.

It has also been commonly believed, that the size of the pupil is influenced by the distance of the objects to which the attention is directed, this aperture being enlarged when the object is far off, and becoming more and more contracted as it is brought near. But though the activity of the fibres of the iris is sometimes sufficient to be visibly influenced by this circumstance, yet, in the greater number, even of those cases where the dilatation and contraction of the pupil are powerfully influenced by a difference in the strength of the light, the distance of the object, considered alone, produces so little effect upon it, as to be scarcely perceived. That it has, however, in general, some degree of power on the pupil is highly probable.

It is evident that some near-sightedness has no dependence on the greater or smaller degree of convexity possessed by the cornea, when this circum-

stance is considered alone; since the length of the axis of the eye from the cornea to the retina, and the greater or smaller degree of convexity in the crystalline humour, must be also regarded, before the distance of accurate vision can be determined. It is no less evident that near-sightedness is not necessarily occasioned by a morbid protrusion of the whole eye; since some persons are born with eyes of this description, and others acquire the peculiarity when further advanced in life, in consequence of a morbid accumulation of *adeps* at the bottom of the orbit, without either of them being more near-sighted than those who are free from this imperfection.

I have seen many instances, says Dr. Ware, in which old persons who have been long accustomed to use convex glasses of considerable power have recovered their former sight at the advanced age of eighty or ninety years, and have then had no further need of them. It appears more than probable, that this remarkable revolution in the sight of old persons is occasioned by an absorption of part of the vitreous humour, in consequence of which the sides of the sclerotica are pressed inward, and the axis of the eye is proportionably lengthened. An alteration of this kind is also sufficient to explain the reason why such aged persons retain the power of distinguishing objects at a distance, at the same time that they

recover the faculty of seeing those that are near ; since the lengthened axis of the eye leaves the power by which it is adjusted to see at different distances, precisely in the same state in which it was before the lengthening of the axis took place.

Although old persons lose the power of distinguishing correctly near objects, and require for this purpose the aid of convex glasses, they usually retain the sight of those that are distant as well as when they were young ; instances, however, are not wanting of persons advanced in life, who require the aid of convex glasses to enable them to see near, as well as distant, objects. Dr. Wells informs us that, when twenty years younger, he was able with his left eye to bring to a focus on the retina pencils of rays, which flowed from every distance greater than seven inches from the cornea ; but at the age of fifty-five he required not only a convex glass of six inches focus, to enable him to bring to a point on the retina rays proceeding from an object seven inches from the eye, but likewise a convex glass of thirty-six inches focus, to enable him to bring to a point parallel rays. There are also instances of young persons, who have so disproportionate a convexity of the cornea or crystalline, or of both, to the distance of those parts from the retina, that a glass of considerable convexity is required to enable them to see distinctly not only near objects, but also those that are distant ; and it

is remarkable, that the same glass will enable many such persons to see both near and distant objects ; thus proving that the defect in their sight is occasioned solely by too small a convexity in one of the parts abovementioned, and that it does not influence the power by which their eyes are adapted to see at distances variously remote.

Near-sighted persons do not appear to possess the same extent of vision that is enjoyed by those who have a distant sight. Being near-sighted, says Dr. Ware, I have repeatedly endeavoured to ascertain my own range of vision, and I find, by examining the focus of my right eye through an optometer, that I see two converging lines, which appear to meet with very slight variations, at the distance of three inches from the eye ; and no effort I am able to make can keep those lines united further than the distance of four inches and a quarter. They then separate and continue to diverge. With my left eye, the lines do not appear to meet nearer than four inches, and they continue united as far as five inches and a quarter, after which they also separate and diverge, so that the range of distinct vision on me does not extend further than an inch and a quarter in either eye ; and within these distances I always hold a book when I read. I find also the following rule, for determining the concavity of the glass that is best adapted for near-sighted persons, to

be perfectly correct with respect to myself, and I believe it may be safely adopted by those who, from distance or any other cause, are unable to suit themselves at the shop of an expert optician. The rule is this: multiply the distance at which the person reads with ease (which with my left or best eye is five inches) by that at which he wishes to read, which may be said to be twelve inches; divide the product sixty by seven, the difference between the two, and it leaves nearly nine inches for the focus of the concave glass that shall produce the desired effect. This is the exact concavity of the glass that I am obliged to use, to enable me to read with ease, and it answers to that sold under the name of No. 6, which is a double concave glass, ground on a tool of eight inches radius on one side and eleven inches on the other, the mean between which is very nearly nine inches. With a glass of this description I can read the smallest print, but to distinguish distant objects I am obliged to look through that denominated No. 9, by opticians, which is ground on a tool of nine inches radius on both sides. In this respect my eye has varied from what it was a few years ago, when I was able to distinguish both near and distant objects correctly through No. 8. This is ground to a radius of eight inches on one side and six inches on the other, and with it I can still read a good sized type, but am unable to distinguish through it

many distant objects, which I formerly used to see distinctly. Hence, it appears, that my eyes have a confined range of distinct vision, extending only to an inch or an inch and a quarter; and that they remain nearly in the same state in which they were many years ago with regard to near objects, but have lost part of the power which they formerly possessed of adjusting themselves to distant ones. In this last respect, they differ from the eyes of those who have naturally a distant sight, since as such persons advance in life they usually retain the power of distinguishing distant objects, but lose that of seeing those that are near. It appears to militate also against the common observation, that as near-sighted persons grow older they become less near-sighted, since my eyes on the contrary are more near-sighted at the age of fifty-five, than they were at twenty-five, and I am now obliged to wear deeper concave glasses than I then used to see distant objects, though I am not able to see distinctly through them things that are near. The alteration which has taken place in my range of vision, I have reason to believe is not unusual. Dr. Wells mentions the case of a gentleman who was near-sighted, and whose sight as he advanced in life had undergone a similar change. The following is also an instance of this kind that is still more remarkable. Mr. L——, sixty-six years of age, who had spent a great part of his time in the

West Indies, and whose sight when he was young enabled him to see both near and distant objects with great precision, began at the age of forty to experience a difficulty in reading and writing. He immediately procured convex spectacles of the first number sold by opticians, which glasses are usually ground to a focus of forty-six or forty-eight inches, and by the aid of these he continued to read and write with ease (distinguishing perfectly in the usual way all distant objects without them), until he was fifty. At this time he first began to perceive an indistinctness in the appearance of things at a distance, and on trying with different glasses he discovered that by looking through a double concave glass of the sixth number (which is ground to a radius of eight inches on one side and eleven inches on the other), he was enabled to see distant objects distinctly. He has continued to use glasses of this description for the purpose of seeing distant objects from that time to the present, but is obliged to remove them whenever he reads, and still to employ the first number of a convex glass. In this instance, a presbyopic was changed to a myopic sight without any known efficient circumstances to produce it. There are many other cases in which a similar change took place, but in them it was attributable to known causes.

MUSCÆ VOLITANTES, OR MOTES IN THE EYES OF NERVOUS PERSONS.

No imperfection of vision is more common than that which is occasioned by the appearance of dark coloured motes before the eyes. These assume various shapes and figures, appear at different distances, and move in different directions, but have no tangible existence in the place where they are seen. Though they do not hinder a distinct perception of the smallest objects, the sight is often much incommoded by them, and the mind is agitated by the apprehension that they are certain precursors of the loss of sight. Dr. Ware says that he was consulted by a nobleman, 31 years of age, on account, he described it, of a considerable number of intersecting motes or beams which floated continually before both his eyes, but particularly before the right. Sometimes they appeared nearly spherical, sometimes like long knotted lines, and sometimes like a series of spherical knots varying in number, magnitude, and opacity. They were perceived when the eye-lids were closed almost as strongly as when they were open. When

the eyes were directed to an object beyond the usual distance of distinct vision, this object appeared as if it was seen through a pane of glass sprinkled with water. He had never suffered from headach or pain in the eyes, but when the present morbid sensations began, he had a violent heat in them without inflammation, and the heat was followed by great languor. On examining the eyes, they appeared perfect, the pupils were clear and of their proper size, and they dilated and contracted regularly in different degrees of light. He was near-sighted, though this did not appear by any unusual convexity of the cornea, and the near-sightedness was obviated by the use of a concave glass. I assured the nobleman that his sight was not endangered by any of the symptoms he described, and the advice I gave, was, that he should endeavour to strengthen the constitution, particularly the nervous system, and abstain as much as possible from any thing likely to agitate the spirits. I ordered him to take, two or three times in the day, small doses of the volatile tincture of valerian, mingled with an equal quantity of tincture of castor, and joined occasionally with the camphor mixture, or infusion of cascarilla. I also directed a warm infusion of rosemary to be applied to the eyes and forehead, whenever they felt heavy or uncomfortable, and that the forehead, temples, and out-

side of the eyelids should be embrocated morning and evening with a camphorated rosemary spirit. I saw this person twelve years afterwards ; he had retained the perfect sight of both eyes, and could distinguish the most minute objects with either of them. In a bright light, however, he still perceived the motes as before, if he took the pains to look for them, but he was now so much accustomed to their appearance, that they did not occasion any uneasiness. He continued near-sighted, and made use of a concave glass denominated No. 4. to distinguish objects at a distance. The case which has been described may be considered as an example of a considerable number of a similar kind, with slight variations in the appearance of the motes.

It is not easy to ascertain the proximate cause of these motes, but from the constancy in their figure and their frequently long continuance, it seems probable, that they depend on a steady pressure on one or more minute points of the retina, which are situated near the axis of vision but not exactly in it.

It has been commonly supposed that these motes are certain symptoms either of an incipient cataract or an incipient gutta serena, and their occasional appearance in company with these disorders has tended to confirm this distressing apprehension. It is hoped that the description of this case (and many others

might be adduced) may contribute to remove this erroneous opinion, and the observations that have been offered will be strengthened by attending to the following brief description of the cataract and gutta serena, and the manner in which these disorders affect the sight.

CATARACT.

Though the opacity of the crystalline humour which constitutes a cataract is sometimes formed rapidly, this is a rare occurrence, the disorder, in general, being slow in its progress. It is first discovered by a sense of confusion in the appearance of small objects. These after a little time are seen through a mist. As the mist increases objects become more and more confused, until at length the power is lost of distinguishing even their outline, and afterwards of seeing any thing more than the difference between light and darkness. The mist, however, in these cases, is always extended universally and does not appear in detached points, and in the same degree of light it increases progressively, until the distinctness of vision is destroyed by it. In the commencement of the disorder the thickness of the mist is not so great when the sight is weak as when it is strong, in consequence of the pupils being dilated in a weak light, by which dilatation the circum-

ference of the crystalline, which is always somewhat less opaque than the centre, is more open to the passage of light through it. I have taken pains to learn whether persons who are deprived of their sight by cataracts perceive these motes, and after an inquiry of no small extent, I think myself justified in asserting that if the opacity of the crystalline humour has not been preceded by internal inflammation of the eye, or by great nervous debility, these motes are very rarely perceived.

It must not be forgotten, however, that the opacity of the crystalline is sometimes accompanied with an opacity of the capsule that contains it. Such a complication is very frequent when infants are born with this disorder ; but it seldom takes place in an after period of life without being preceded by an inflammation in the internal parts of the eye ; and this inflammation is fully sufficient to occasion such an alteration in the structure of the choroides, as may, by making more or less of unequal pressure on the retina, excite the sensation of the motes which have been described. In these instances no less than in those which have been preceded by nervous debility, the motes are more strongly perceived when the light is strong ; and it is not unworthy a remark that in cases where the sense of sight is wholly extinguished, the imaginary appearance of motes ceases with it.

GUTTA SERENA.

The gutta serena is not always complete, any more than the cataract. When complete, the pupil is in general much dilated, though this may be hindered by different circumstances, particularly by the adhesion of the posterior part of the iris to the capsule of the crystalline humour. Such an adhesion is not unfrequent when the internal parts of the eye have been inflamed: But whether the pupil in this disorder be dilated or contracted, its size is always unchangeably fixed, both in a weak and strong light, and this forms the characteristic difference between the gutta serena, which is so alarming and too often destructive to the sight, and that comparatively harmless affection of the eye which occasions the *muscæ volitantes*. However numerous these motes may be, and however distressing to the persons who behold them, if the power of the pupil to dilate and contract in different degrees of light remain perfect, and if the eye be able to distinguish minute characters as accurately as it did before the motes were perceived, it may be safely inferred not only that the optic nerve retains its due degree of sensibility, but that the tunica choroides also is uninjured, since the iris, the membrane in which the aperture of the pupil is situated, is a continuation of the choroides,

and therefore the pupil cannot be freely acted upon, if the choroides be in a state of disease, or if the connexion between the retina and choroides be not perfect.

From the observations that have now been made, it follows, that whenever the appearance of muscæ volitantes is unaccompanied with the sensation of a mist, which more or less obscures the appearance of objects, the conclusion may be safely drawn, that it is not a symptom of cataract; and whenever this appearance is not accompanied with a fixed state of the pupil, it may as safely be inferred that it is not a symptom of the gutta serena.

In making this remark, however, it is not meant that the appearance of these motes is not occasionally observed by persons who have an incipient gutta serena, as well as by those who have an incipient cataract; but in such cases other symptoms denoting these different disorders are always present with them.

It has by some been supposed, that the muscæ volitantes are induced by a too great determination of blood to the vessels of the eye, and under the influence of this opinion powerfully evacuating remedies have occasionally been employed for the purpose of removing them. But though it cannot be denied that a plethoric state of the system is capable of

occasioning these appearances, it is a fact that very few instances have come under my notice, in which a debilitating treatment has afforded any kind of assistance ; and on the contrary many cases have occurred, in which the strength and number of the motes have appeared to be much increased by it.

The more common exciting cause of these motes appears to be, too close application of the mind to objects that occasion anxiety or distress, and on this account it is highly important to relieve the mind, as far as is possible, and to encourage it, not only by an assurance of the absence of all danger to the sight from this symptom, when it is independent of others, but of the high probability that the motes will become less and less troublesome in proportion as the strength and spirits can be recruited. The modes by which this object may be attained must vary in different cases. If the eyes have been weakened, and are become uneasy by the frequent discharge of tears, it will be useful to foment them two or three times in the day with hot water, or a hot infusion of camomile flowers, or of the herb eyebright, and afterwards to embrocate the forehead, temples, and outside of the eyelids with camphorated spirits, eau de Cologne, Hungary water, or some similar application.

Small doses of the volatile tincture of valerian, or the spiritus ammoniæ compositus, given in two or

three tablespoonfuls of the camphor mixture, are also often beneficial. Previous, however, to the use of volatile remedies, it is always necessary to attend to the state of the bowels, and of the biliary organs. These are often sluggish in their actions, and the secretion of bile is sometimes very defective. In such cases a brisk dose of calomel, or some similar purgative medicine, may afford great assistance ; means, however, being always taken, during the action of such medicines, to hinder the general system from being debilitated by them.

SQUINTING.

DR. JURIN says, that the vicious habit of squinting may easily be contracted by a child, if he is often laid in his cradle in such a position as to be able to see either the light, or any other remarkable object, with one eye only ; and when by this means he squints, and the habit is confirmed, he apprehended that it would be in vain to attempt to cure him by wearing tubes, or shells with small holes in them, to look through, a practice which formerly existed.

The method he proposes is, that when the child is arrived at such an age as to be capable of observing directions, he is then to be placed directly before the operator, who directs him to close the undistorted eye, and to look at him with the other. When you find the axis of the eye fixed directly upon you, continues the doctor, bid him endeavour to keep it in that situation, and to open his other eye. You will now see the distorted eye turn away from you towards his nose, and the axis of the other eye will be pointed towards you ; but with patience, and repeated trials,

he will, by degrees, be able to keep his distorted eye fixed upon you, at least, for some little time after the other is opened ; and when you have brought him to keep the axes of both eyes fixed upon you as you stand directly before him, it will be time to change his posture, and to set him first a little to one side of you and then to the other, and to practise the same thing ; when in all those situations he can perfectly and readily turn the axes of both eyes towards you, the cure is effected.

Dr. Jurin adds, that grown up persons need not despair of a cure, but may practise all this by a glass, without a director, though not so easily as with one ; but then the older the patient is, the more practice is necessary.

Buffon considers the affection of squinting to arise merely from an inequality in the goodness of the eyes ; but an important and consolatory observation he makes must not be omitted, viz., that in some cases the eyes have what is called a cast only, in consequence of the optic angle being too great or too small even when they are of equal goodness. This he supposes to be generally the result of habit, acquired very early, in consequence of the mismanagement of children, and that it is easily cured. He says, that if the eye that squints be turned towards the temples, he has generally found that there is no

great inequality in the goodness of the two, and that in this case, the cause being only a vicious habit, the cure has been completed by covering the good eye for a fortnight only.

Dr. Priestley observes, that the circumstances which appeared to him to occasion squinting in young children, agreed well with the above theory ; thus, if a child be laid so in his cradle as that one eye shall be covered, the external influences of light cannot operate upon it ; and if this be often repeated, the eye which is covered will obey the influence, and turn upwards and inwards for the most part.

SPECTACLES.

AN optic machine, consisting of two lenses set in a frame, and applied to the nose to assist in defects of the organs of sight.

It is well known that parallel rays, or such rays as proceed from a very distant luminous point, will be collected by the refraction of all the humours, through which they must pass in the eye, to a focus on the retina, which is the true place of the image. But at the same time it is evident, that if that be the focal distance for parallel rays, it cannot be the focal distance for diverging rays ; or, in other words, when the objects are situated at a few feet distance from the eye, then true images must be formed further back, consequently their images upon the retina must be imperfect, unless the retina be situated further back by an elongation of the axis of the eye, or the focal distance be shortened by the alteration of some other part. But since we may perceive either distant or near objects distinctly, it is evident that some such alteration does actually and necessarily take place. This is called the adjustment or accommodation of

the eye for distant vision ; but the difficulty is to determine how this adjustment is effected.

By some persons it has been attributed to a change in the length of the eye, and by others to a change of curvature in the cornea, but some very recent experiments render those alterations unlikely, at least to the full amount of what may be required. Other ingenious persons have attributed the alteration to a change either of the shape of the crystalline lens, or of its situation, or of both, and this opinion seems upon the whole to be nearer the truth.

That the eye cannot see both near and remote objects distinctly at the same time may be easily proved. Let a tree, a house, or some other object be upwards of fifty feet from you ; shut one eye, and while you are looking with a single eye at the tree, &c., hold a pin, a pencil, or some other object, in the same direction at about a foot distance from the eye, and it will be found that while you see the pin distinctly, the tree will appear indistinct.

The eyes of some persons are more capable of adjustment than those of others. In old persons the humours grow thicker and the parts less pliable ; hence their eyes are less capable of adjustment than those of young persons.

The eyes of some persons can be adjusted for distant objects better than for near objects, and *vice versa*.

When the eye is defective, and by its size or other

conformation, parallel rays form their foci before they arrive at the retina, then the person can see very near objects only. Such persons are said to be near-sighted, or they are called *myopes*. When the eye is flatter than ordinary, then the foci of rays from pretty near objects are formed beyond the retina. Persons with such eyes are called *presbytæ*; they can adjust their eyes for objects beyond a certain distance only. The latter is generally the case with old persons; but the eyes of old persons sometimes are incapable of adjustment both for very near and for very distant objects. This comes from a rigidity or want of pliability in the parts. These defects are frequently brought on or increased by habit, as by the constant habit of viewing objects either from too near or from too great a distance, as also by the use of improper glasses.

These imperfections may in a great measure be remedied by the use of proper glasses or spectacles; for since in near-sighted persons the rays of light converge to a focus too soon, viz. before they come to the retina, concave lenses, which diminish the convergency, must remove the imperfection: and for those who can see distant objects only with tolerable distinctness, viz., in whose eyes the rays do not converge soon enough, those convex lenses, which increase the convergency, must remove the imperfection.

When the defect comes from rigidity, as in some

old persons, then those persons require concave glasses for viewing distant objects, and convex glasses for viewing near objects ; for their eyes want both adjustments.

The capability of adjustment is greater or less in different eyes, and it is frequently different in the two eyes of the very same person ; but in all eyes there is a limit within which vision is not distinct. This is called the *limit of distinct vision* ; and with some persons it is as short as one inch, while in others it exceeds twenty inches ; but in common it will be found to lie between six and ten inches.

The essential and extensive use of spectacles, which affords comfort to so great a number of individuals who would otherwise be a burden to themselves and to society, is an instance of the great usefulness of the science of optics.

No pains have been spared to render spectacles as perfect as possible, and a variety of contrivances have been from time to time offered to the public. Spectacles have been made with two lenses for each eye ; also the lenses have been made plano-convex or plano-concave, or of other shapes ; but, upon the whole, single lenses, either double concave or double convex, of clear glass, well polished and regularly formed, are the best.

When the eyes of persons first begin to be affected

by age the opticians furnish them with spectacle lenses of about forty inches focus, which glasses are therefore called number 1, or glasses of the first sight, viz., for the sight when it first begins to be impaired by age. But there is a considerable difference between the focal distances of spectacles, No. 1, made by different opticians. The first sight is generally denominated 36 inches, the second 30 inches, the third 24 inches, the fourth 20 inches, the fifth 18 inches, the sixth 16 inches, the seventh 14 inches, the eighth 12 inches. And sometimes they make spectacles of a focus shorter still. Concave spectacles are also named by numbers.

In choosing spectacles actual trial is the best guide; but care must be had to use spectacles that do not magnify more than is just sufficient either for reading, or for other necessary purposes.

When a variety of spectacles cannot actually be tried, the defect of the sight may be expressed by mentioning the distance from which the person can read, or other peculiarities from which the necessary glasses may be determined pretty nearly. See p. 15.

Dr. Wollaston having considered that the portion of any glass employed in any one position of the eye is but small, perceived that, by making the substance of a glass curved in the manner of a hollow globe, each portion of it might be situated nearly at right

angles to the direction of the sight, and would, therefore, render lateral objects distinct without impairing the distinctness at the centre.

With a view of obtaining the same effects as Dr. Wollaston's periscopic spectacles, a new species of glasses were introduced, about twenty years ago, in Paris, by Chamblant ; they are called *conserves* : these glasses are ground to cylindrical surfaces instead of the spherical surfaces which have hitherto been employed for spectacles and lenses of all kinds ; the opposite surfaces of each glass are segments of two different cylinders inclined to each other at right angles, that is, the axes of the two cylinders are situated in parallel lines, but in direction they lie at right angles to each other, and in consequence the direction in which one surface of such a glass is curved, is at right angles to the direction in which the other side is curved.

On making trial of a pair of these glasses we found them very perfect in the field of view, presenting a very distinct vision of objects viewed through the outer part of the glass, as well as those viewed through its central parts ; and the magnifying power of the whole field as nearly equal as the eye could judge.

Mr. Curtis, in a treatise on the Physiology of the Eye, makes the following judicious remarks :

“ Most persons begin to feel the necessity for some assistance to their eyes in reading or working after the age of thirty or thirty-five ; though even the commencement and progress of the deterioration of the eyes vary according to the degree of health the individual has enjoyed, their original formation, the use that has been made of them, &c., so that some persons have as much occasion for spectacles at twenty-five as others have at fifty ; and others, on the contrary, have as good sight at fifty as they had at twenty-five ; still, the average time at which glasses are needed for reading, may be said to be from thirty-five to forty-five. After this latter period of life, the power of adjustment possessed by the eye in youth fails ; and those who continue to perceive distant objects clearly, are unable to see plainly those which are near ; and the man who can read the smallest print unfatigued without glasses, cannot distinguish any thing distinctly at the distance of ten yards.

“ His late Majesty George the Fourth was always particularly careful of his eyes ; and it is by no means improbable that the afflictive blindness of his revered father, during several of the closing years of his life, was often present to his mind, and was the main cause of his care in this respect. The spectacles he

used for viewing distant objects were No. 6; for nearer objects No. 2; but it is very singular that for reading he wore only preservers of thirty-six inches focus.

“ Among the many vulgar errors that are daily injuring those who cherish them, few have done more injury to the eyes than the notion that all persons of the same age require glasses of the same focus. Nothing can be more absurd; as well might the same remedies be applied indiscriminately for all diseases, provided the ages of the sufferers but tally !

“ The most general, and probably the best direction which can be given to those who feel that glasses are necessary to enable them to use their eyes with comfort to themselves and advantage to their occupation, whatever that may be, is to make choice of such as represent objects nearest to their natural state; for to be exactly suitable to the eye, spectacles ought neither to magnify nor minify, but should enable us to read or work without creating any straining or unnatural exercise of the pupil.

“ The great design of spectacles is give the eyes of the wearer ease; and although this is also attended by increasing power of application, yet no glasses can be said to be properly accommodated to the sight of the individual which do not, with additional capability, also procure rest and comfort for the eyes. If

they weary them, we may conclude, either that we have no occasion for any, or that those we have are improper, or defectively made.

“ Glasses are of two kinds—*convex* and *concave*: convex glasses are for the use of those who have what is commonly called an old, or long sight, and are unable to read or see small objects near them ; concave glasses are for the use of those who are short-sighted, to enable them to see distinctly objects at the same distance, at which they were able to perceive them before they became short-sighted.

“ By the aid of convex glasses of thirty-six or thirty inches focus, persons whose sight is beginning to be unequal to read small print, or to work, without fatiguing and paining their eyes, will be enabled to do either ; and, if properly chosen, by the ease and comfort they afford, will tend materially to preserve the sight ; hence their name of *preservers*, which, however, is a term as applicable to all the various gradations of glasses. The length of time that will elapse before it may be necessary to change these first spectacles, must depend upon the same circumstances which I have mentioned as creating the necessity for using them at all. However, it may be said that they will commonly serve for reading in the day-time, about six or seven years.

“ As soon as the eye begins to do little better with

the glasses used than without them, it is time to change them for more powerful magnifiers, and the second sight, or thirty inches focus, are necessary ; though these should not be too hastily adopted by those who wish to preserve their sight unimpaired to old age ; but they should be content to use them as sparingly as possible—only when unavoidable. Many have worn out their sight prematurely by using spectacles of too great a magnifying power, or of improper materials and faulty workmanship, to which their eyes have soon become accustomed ; but they speedily exhaust the resources of art, and before death have become totally blind.

“ Those who are about to commence wearing glasses, as they cannot know what will suit their eyes, will do well to borrow a set of glasses, consisting of spectacles of regular gradations of power, and try at home for a few days which best suit them : they should make the experiment by daylight and candle-light, in that posture of the body in which they will be most used.

“ Almost all persons, on first wearing spectacles, if they keep them on for a few hours, complain of fatigue and uneasy sensations in their eyes ; and this, even though they have been judiciously chosen, and when they were needful. Such weariness will be

most felt by candle-light ; and is caused, no doubt, by the eyes for some time before resorting to glasses having been tasked beyond their ability ; and not, as is commonly supposed, by the artificial light, though that probably contributes to it.

“ Those whose avocations or amusements render the assistance of magnifiers necessary, ought to bear in mind, that the lower the degree of magnifying power possessed by their glasses, the less constrained the position of the body in using them, and the larger as well as more uniformly distinct the field of view embraced by them. Where only a moderate magnifying power is required, I would recommend, instead of a single magnifier, the use of spectacles of 36 or 30 inches focus, which will enable the eye to be directed to minute objects without weariness for a longer time than if an eye-glass only be used, as well as being of material benefit in preserving one of the eyes from becoming injured by being constantly unemployed.

“ The glasses called *compound magnifiers*, consisting of two plano-convexes with their plane sides outwards, as they have a large and distinct field of vision, are very agreeable and useful to some persons.

“ The use of spectacles is every way preferable for short-sighted persons to single eye-glasses ; a strong

confirmation of the truth of which may be found in the fact that Mr. George Adams, a late highly-celebrated optician, asserted that he did not recollect an instance of a short-sighted person who had occasion to increase the depth of his glasses, if he began with spectacles: but, on the other hand, he knew many cases where only one eye had been used, in which the individuals had been obliged repeatedly to change their glasses for concave higher power. Indeed, the advantage of a pair of spectacles over an eye-glass is very evident, from the circumstance that all objects are much brighter when seen with both eyes than when looked at with one only.

“ Little can be said in the way of advice as to the choice of spectacles for those who are short-sighted; the defect being totally unconnected with age, and making no regular progress, by which an optician might be guided in his recommendation of one focus rather than another. It rests entirely with the persons who feel their need of assistance; but I would strenuously advise all such to be satisfied with glasses as slightly concave as possible: by which I mean, that they should employ no higher power than is necessary to enable them to see distinctly objects at from forty to fifty feet distance. This will be found amply sufficient for all ordinary purposes; and when it is

desirable on any extraordinary occasion to increase for a time this power, it may be done with pleasure and without injury.

“ Near-sightedness remains nearly the same through life ; and few who have chosen their first concaves judiciously have occasion to change them even in old age, the same glass continuing to give the very same degree of help which it did in early manhood.

“ To see very distant objects, many persons are in the habit of looking through a concave eye-glass placed obliquely ; but a small opera-glass, from its having an adjustable focus, though it magnify only twice, will be far better than a single concave, in consequence of the facility with which it can be adapted to various distances.”

Pebbles have two very great advantages over glasses : first, the pebble being a stone, is much cooler to the eye than glass ; secondly, it is not so liable to get injured by friction and rough usage.

“ It will probably be expected that I should here say what opinion I entertain of the amber spectacles. These have been recommended by several oculists, and my patronage has been solicited for them. But surely those gentlemen who have given them their sanction cannot have remembered that amber is com-

paratively a soft substance, consequently very liable to become scratched, and that the polish is easily worn off. They are also much more expensive than even pebbles, and, as it appears to me, possess no one advantage corresponding with their cost. For these reasons I entirely differ from those who have thought them preferable to glasses.

“ To persons of weak eyes, and to those who have been in the habit of using goggles for riding, driving, or walking, I would recommend the gauze spectacles, on account of their being much cooler ; and as a protection against the wind, dust, and sun, they will be found very serviceable and agreeable.”

The points of complaint respecting the common spectacles are :—

That the assortment of the lenses is irregular, one of the glasses having generally a different focus from the other ;

That they are badly polished, and this affects their transparency ;

That the two glasses or lenses are never of an equal thickness ;

That the glass is often full of specks and imperfections, which being partly ground down are not easily observable ;

And, finally, that the convexity is not regular, the

sides not only differing, but different degrees of convexity being absolutely on the same side of the lens.

The author of these pages was led by chance, some time ago, to the shop of a skilful optician, named Chamberlain, residing at 37, Broad Street, Bloomsbury. A few glasses and Brazil pebbles were selected for himself, and some gentlemen who had been his patients, and they proved to be the most perfect he or his friends had ever used. In justice to this optician, and in order to benefit the public, we recommend those who stand in need of spectacles to apply to him, not only because his articles are of a superior quality, and therefore free from the defects we have alluded to, but they are sold at half the price usually charged by many others in the same business. We recollect paying a London optician, a twelvemonth ago, fourteen shillings for a pair of Brazil pebbles, and for the very same quality Mr. Chamberlain charges five shillings, yet he says that he obtains a fair profit. However, we subjoin his prices, in order to induce other opticians to follow his example *.

	£. s. d.
* A pair of best Brazil pebbles, fitted to the frame	0 5 0
Best Brazil pebbles, in gold frame .	1 15 0

A METHOD TO AID THE SIGHT WHEN COMMON
SPECTACLES ARE USELESS.

THERE are some men whose sight cannot be aided by the use either of concave or convex glasses. The following method, adopted by one of these to aid his sight, is certainly worthy of notice:—When about

			£.	s.	d.
Best Brazil pebbles in gold frame		ditto	2	2	0
Ditto	ditto	ditto	2	12	6
Ditto	ditto	silver ditto	0	15	0
Ditto	ditto	ditto	0	16	6
Ditto	ditto	blue steel, ditto	0	12	0
Ditto	ditto	ditto, very fine	0	16	6
Ditto	ditto	tortoise-shell ditto	0	10	6
Ditto	ditto	best horn ditto	0	7	6
Ditto	ditto	polished steel ditto	0	6	6
Handsome gold folding hand spectacles			*1	16	6
Handsome silver folding hand spectacles			0	16	6
Ditto tortoiseshell			0	17	6
Best glasses in silver frame			0	12	6
Ditto	tortoise-shell ditto		0	5	6
Ditto	blue steel		0	10	6
Ditto	ditto	ditto	0	8	6
Ditto	ditto	ditto	0	7	6
Ditto, neat horn frames, from 1s. 6d. to			0	2	6
Ditto, neat steel ditto, from 1s. 6d. to			0	2	6
Pair of best glasses to your own frame			0	1	0

* And upwards.

sixty years of age, this man had almost entirely lost his sight, seeing nothing but a kind of thick mist with little black specks, which appeared to float in the air. He knew not any of his friends ; he could not even distinguish a man from a woman, nor could he walk in the streets without being led. Glasses were of no use to him ; the best print seen through the best spectacles seemed to him like a daubed paper.

Wearied with this melancholy state, he thought of the following expedient :—He procured some spectacles with very large rings, and, taking out the glasses, substituted in each circle a conic tube of black Spanish copper. Looking through the large end of the cone he could read the smallest print placed at its other extremity. These tubes were of different lengths, and the openings at the end were also of different sizes ; the smaller the aperture, the better could he distinguish the smallest letters ; the larger the aperture, the more words or lines it commanded, and consequently the less occasion was there for moving the head and the hand in reading. Sometimes he used one eye, sometimes the other, alternately relieving each, for the rays of the two eyes could not unite upon the same object when thus separated by two opaque tubes. The thinner these tubes the less troublesome are they. They must be

totally blackened within, so as to prevent all shining, and they should be made to lengthen or contract, and enlarge or reduce the aperture at pleasure. When he placed convex glasses in these tubes, the letters indeed appeared larger, but not so clear and distinct, as through the empty tube ; he also found the tubes more convenient when not fixed in the spectacle rings ; for, when they hung loosely, they could be raised or lowered with the hand, and one or both might be used as occasion required. It is almost needless to add, that the material of the tubes is of no importance, and that they may be made of iron or tin, as well as copper, provided the insides of them be sufficiently blackened.—*See the 'Monthly Magazine for April, 1799.*

PRECAUTIONARY HINTS TO THOSE
WHOSE EYES ARE IN A STATE
OF SOUNDNESS.

THE custom generally prevails of selecting the most retired part of our habitation as the place of repose ; it consequently follows that the bed chambers in London are excessively dark, besides, if they are not naturally gloomy they are rendered so by the means of shutters or thick curtains, and the beds are so carefully enveloped with close, dense stuffs that the faintest ray of light is absolutely excluded.

To say nothing about the injury which the general health sustains from this circumstance, what can be more prejudicial to the sight than passing suddenly from these sombre dens into the breakfast parlour, frequently the lightest room in the house, and at an hour too, at least among our fashionables, when the sun shines with all its brightness ? An elderly gentleman, with whom the author is acquainted, attributes in a great measure the perfect soundness of his eyes to the care he evinced all through life of avoid-

ing, as much as possible, coming suddenly from extreme darkness into brilliant light.

We should not, therefore, expose ourselves suddenly after first awaking, to an overpowering glare.—The bed chamber ought not to be too much darkened.—The windows should be furnished with green curtains, and these ought not to be drawn aside immediately, or until the eyes are prepared by a subdued light to encounter the full rays of the sun.

It is also recommended to those whose circumstances will permit it, not to choose a bed chamber exposed to an eastern aspect.

A pernicious habit exists with many persons of rubbing the eyes in the morning. Those individuals who are not compelled by their daily occupations to force their sight, do not readily perceive the injury arising from this injudicious habit; but those who are obliged, more or less, to force the visual organ soon discover the bad consequences. There are many who are troubled with inflamed and running eyes, and the remote, perhaps even the proximate, cause in numberless instances, is the pernicious custom of rubbing the eyes on first awaking.

It is advisable to pass a wetted finger over the eye-lids if we find it difficult to open them: healthy saliva which is so essential for digestion is also highly beneficial to the eyes, perhaps more so than any hete-

rogeneous liquid ; and experience shows that persons who have found considerable difficulty at first opening their eyes, have been perfectly cured after a short adherence to this salutary practice.

It is a well-known fact, that the human eye will bear the deepest incisions with sharp instruments, without any serious detriment to the sight, while the slightest wounds, even the most insignificant accidents, if accompanied by contusion, are always extremely dangerous. It is for this reason that those wounds of the eye which contract the parts too strongly, or even lacerate them, are always the most fatal to the sight. Instances are on record of persons becoming totally blind in consequence of a strong pressure upon the eyes in some wanton frolic.

It is by no means rare for an eyelash to bend into the eye during the common operation of rubbing, a circumstance which, however apparently trivial, often excites the most painful and obstinate inflammation.

There are others who no sooner experience the slightest complaint in the eyes, but they immediately screen them from the common action of the air and from the light of day, by covering them with linen closely folded, so as to compress the organ and thus increase the evil. This practice is often the cause of most painful and dangerous ophthalmia, and is sometimes followed by entire blindness ; for a slight flow

of humour, a little extravasated blood, which would have been absorbed and have disappeared of itself in a few days, is thus encouraged to degenerate into a thickness of the aqueous humour in the crystalline part of the eye, or into a malignant ulcer, nay sometimes into an abscess, and the eye which was but slightly indisposed becomes absolutely so, being converted into a state of morbidity which bids defiance to the best care of a judicious operator.

These observations must not be taken in the extreme. It is very true that the eye, even when much affected and when acutely sensible of the irritation of air and day-light, may be permitted to remain without any covering, provided the disorder is not absolutely dangerous, or apparently of protracted duration; but it is necessary to guard against the painful glare of light, as well as from the cold or humid air; this may easily be done by means of a simple shade of green silk, fitted with a steel or brass spring, or hung with a riband, but so suspended in either case, as not to press upon the eye, or entirely to prevent it from exercising its functions.

Bathe the eyes morning and evening, and even during the day, when they require it, in pure cold spring water. No one ought to neglect doing this, particularly during summer time or in windy weather; dust or pulverised calcareous substances enter-

ing the eye are frequently the cause of ophthalmia. River and spring water are preferable to pump water, and the finest linen should be used, but carefully avoid having recourse to this eye-bathing when you are in a state of perspiration. When getting out of bed do not wash your face and eyes immediately with cold water, there is always a certain degree of perspiration on the head, although scarcely perceptible. There is more danger in employing eye-glasses to bathe the eyes than is generally supposed ; the quantity of water being so small, it becomes quickly heated and is then injurious, even the linen that is used should be frequently re-dipped in the cold water. Eye-glasses or eye-cups are in almost every instance worse than useless.

The best lighted apartments are those we should select if we make a forcible use of the eyes, but neither read, write, nor work in a room the windows of which look upon a whitened wall upon which the sun's rays fall direct.

Those windows made after the French fashion, and entresol apartments, are not well suited to persons whose occupations require a forcing of the visual organ ; the light coming from below is what may be termed a false light, and is therefore injurious.

Students, watchmakers, engravers, miniature

painters, and ladies who are continually working with the needle on white articles, should choose a room from which a long perspective of different objects may be occasionally viewed, this would be a kind of relaxation to the eye.

In the palaces of kings and in the mansions of the great a room is invariably chosen, the furniture, ceilings, wainscot, picture-frames, &c., of which are of a subdued softened colour, and here the possessor spends the greater part of his time. George the Fourth had an apartment in Carlton House, and another in Windsor Castle fitted up in the most simple manner, and from which all gilding or glaring colours were carefully excluded, and in these he generally occupied himself. One of these rooms was wainscotted with oak and the other was of a green tinge.

We caution the hazel-eyed daughters of Britain against the use of veils. The fashion fortunately appears to be less prevalent than formerly: it stands to reason that these light gauzes intercept objects or render them confused, while their continual undulating motion is pernicious to the sight.

All brilliant vivid colours for the lining of bonnet should be avoided, they reflect the light from a thousand different rays and throw it down upon the pupil; and thus become more dangerous than the direct rays of the sun.

Fans must also be laid aside, if they are worked in gold, or silver, or ivory. Let our fair country-women imitate the Parisian belles, who last summer introduced a fashion in which for once there was much good sense. Ladies were seen sitting in the gardens of the Tuileries, or the Boulevard des Italiens, cooling their pretty faces with large green silk or paper fans, with no opening in them to admit the rays of the sun.

Tight-lacing every one knows interrupts a free circulation and determines a flow of humours to the head, but we fear that our time would be thrown away in telling the ladies of the pernicious consequences to their eyes. The vile custom of wearing tight neckerchiefs is equally bad.

It is also deserving of caution, that where the eye is accustomed to a strong artificial light during the evening, it ought not to be sedulously occupied immediately afterwards where there is less light.

They whose circumstances will permit should always have a night lamp in their chambers in order that the eyes be not, for a single instant, deprived of the effects of light, even though small. The lamp should be so constructed as in all cases to prevent the flame from falling direct upon the eyes, and ground flint glass will deprive it of its transparency.

Sleep too long protracted, like an entire abandon-

ment of the use of sight, must be comparatively hurtful.

If a person cannot, from his circumstances, seclude himself totally from assiduous labour, let him, at least, endeavour to vary his mode of occupation.

Let him shut his eyes, from time to time while at work, or walk about the apartment or manufactory in which he is placed ; or, which is more efficacious, let him go out into the open air, though but for a few minutes ; this will produce a sensible effect.

Let him be careful to keep up the perspiration of the feet by bathing them in tepid water, into which some salt and vinegar may be thrown.

Moderate exercise is recommended.

Let him who has trusted too much to the strength of his eyes carefully abstain from all steady labour immediately on rising or after his meals, as well as by candlelight. Let him bathe his eyes often during the day in cold water, a remedy which, though simple in itself, will never fail of producing, though at first insensibly, the best effects.

We cannot have too much light in an evening when occupied ; two candles at least are necessary before each person, and even three or four, according to the nature of the occupation ; they should be of equal height, and placed in a manner that the flame shall not fall horizontally, but rather obliquely upon

the sight. The candlestick should therefore be made so as to answer this purpose ; at least every person should make use of a book or some other substance to produce the effect.

A new kind of candles have recently been introduced, which are far superior to those of tallow or sperm, and nearly equal to wax, at less than half the cost ; they are made from cocoa-nut oil, and produce a clear, steady, beautiful light, free from smoke and unpleasant odour.

We recommend those persons who work or read by artificial light to use a lamp. The best of the kind are those called semi-umbra and lume-umbra ; they also bear the name of Dr. Kitchener's lamps, as the supposed inventor. This, however, is not the case. It is the celebrated phrenologist, Mr. Deville, of the Strand, to whom we are indebted for this useful invention.

Grey or blue eyes, all other considerations apart, can support a much stronger and more continued tension of the visual organs than brown or black.

No one should read or write at the close of the day in dark places, or by moonlight, and above all, never fix your eyes too long upon the moon.

The foundation of an incurable weakness of sight in children is often occasioned by carrying them suddenly to the side of a window, or to any particularly

light place, when they have just left an obscure one. A foolish custom exists in some families of placing over or near the cradle some shining object, such as a mirror or other polished body, which the infant looks at with eagerness and for a long time after it awakes. Avoid also holding brilliant or shining objects close to the eyes of the infant.

The table or desk at which we are occupied should be placed in such a manner that the light shall fall obliquely over the left shoulder.

It is hurtful to hold a book or any writing behind the light, or turn one's back to the window for the purpose of reading with more facility.

Avoid reading too much during the evening, and rather adopt writing where a certain portion of labour must be executed.

All artisans who work at large fires ought often to wash their eyes with cold water : and also those who work in woollen and cotton manufactories should free their eyes from impurities by the same means.

Persons having weak eyes ought never to shun the light, but merely, when obliged to sit near a candle, soften its too great brilliancy ; in order to prevent the obstinate irritation it may produce, a portable green silk screen is useful in such cases.

A person travelling when deep snow is upon the ground, in order to guard against the impression of a

reflected light, would do well to shade the eyes with a dark thick crape. The same remark applies to calcareous soils or sandy roads.

Whenever a person finds a difficulty in opening or shutting the eyes, or that the eye-lids are so strongly attached that they press on the body of the eye and produce a painful contraction, in such cases the weak eye cannot support the application of cold water without being exposed to the danger of inflammation, but if the weakness of the eyes is not accompanied by those symptoms, then the use of cold water will always have a good effect*.

If any extraneous matter enter the eye, avoid rubbing the eye-lids with the hand, this brings on inflammation. It may be generally expelled merely by raising the upper eye-lid, and leaning the head forward. In keeping thus the eye-lid elevated, and the eye quiescent for a few moments, one feels a flow of tears starting from the organ, which does not fail to bring along with it the cause of the pain, or, at least, to carry it towards the corner of the eye, next to the nose, whence it may be removed by a small piece of linen folded to a point, or even by the corner of a handkerchief.

If, however, the substance cannot be extracted in

* There are some other cases when the eye should not be bathed with cold water.—See page 19.

this manner, the upper eye-lid must be kept elevated as much as possible, and the eye being then turned towards the nose, a small hair pencil, dipped in cream, must be introduced between the eye-lid and the body of the eye, beginning at the exterior corner and ending at the interior corner, in doing which the extraneous matter cannot fail to be extracted. To perform this operation the person ought to be placed in a chair near the light, his head resting backwards, and he himself holding the eye-lid in a state of elevation.

If the patient feels that the piece of glass, iron, quill, or whatever substance it may be, is attached to the tunic covering, and will not yield to the pencil, it is absolutely necessary to have recourse to an oculist.

If the substance introduced into the eye be quick-lime, vitriol, or snuff, it is necessary that the hair pencil be dipped in fresh butter. Do not bathe the eyes, in such cases, in water. Wasps, bees, or gnats, sometimes sting the eye-lid, and great inflammation and swelling ensue, so much so that the person cannot open the eyes ; if the sting is left behind, extract it with a small pincers ; do not rub the eye, but use a little salt, vinegar and water, in which a piece of brown paper may be steeped, and then applied upon the eye-lids, in form of a compress.

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